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ABSTRACT

Program budgeting, a method founded in the systems approach, allows control, management, and planning in the library system, and avoids the more comprehensive analysis required by zero-based budgeting. By evaluation of the impacts of the work accomplished by the library staff, the budgeted amounts can be justified or adjusted in subsequent years. Using the program budgeting structure, the data in a graduate school can be analyzed and the budget of the graduate school library can be focused on the values of the school. Staff and materials expenditures are two major budget categories that require special attention. Program budgeting also facilitates planning on a 5-year basis by predicting inflation increases and taking into account trends in the impacts of the library. The arrangement of program structure focused on the library as a subcategory, a bibliography, and several illustrative tables are included. (KM)

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# PROGRAM BUDGETING FOR A GRADUATE SCHOOL LIBRARY

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I. The Nature of Budgeting Systems

A. Distinctions Between Private Sector and Public Sector Budgeting.

The private sector can be defined as being those organizations whose primary purpose for existence is to create a profit through the productionof some goods or provision of some services. The public sector consists of organizations which lack the profit motive in terms of seeking an excess of funds after expenses have been subtracted from incomes. There are many variations of organizations within each of these two broad categories; and two organizations with similar structure and control can each be on opposite sides of the dividing line because one has the profit motive while the other does not. Thus private sector organizations are often referred to as "for-profit," while public sector organizations are referred to as "not-for-profit."

To state that an organization is "not-for-profit" lacks a positive definition of the purpose of its existence. To overcome this omission public sector organizations can be called service institutions and private sector organizations called business firms.

Service institutions, by having a service motive share the common problem of the measurement of performance. Business firms may be complex in these operations, but the final measure of performance is profit measured by numbers of dollars. The lack of a clearly defined measure of performance does not impugn the value of service institutions. Every person living in a modern, industrial society depends on many public service institutions for his or her very

survival. From the remoteness of a worldwide defense posture to the immediacy of the disposal of constantly generated waste materials public service institutions enhance and extend the primarily economic functions of society. (Drucker, pg. 44)

The failure to develop clearly defined performance measures for service institutions is often explained in terms of their objectives being intangible.

> Achievement is never possible except against specific, limited, clearly defined targets, in business as well as in a service institution. Only if targets are defined can resources be allocated to their attainment, priorities and deadlines set, and somebody be held accountable for results. But the starting point for effective work is a definition of the purpose and mission of the institution--which is almost always "intangible," but nevertheless need not be vacuous. (Drucker, pg. 49)

To bring the value of service institutions into focus through the control of their achievements a method for the development of "specific, limited, clearly defined targets" is needed. Such a method is available in the systems approach, which had its beginnings in Operational Research developed during the Second World War. The systems approach had its first extensive applications through the influence of Secretary of Defense, Robert McNamara in the early 1960's under the label "PPBS," i.e.,"Planning-Programming-Budgeting Systems."

> Given a condition of presiding over unanticipated and uncontrolled events resulting from their decisions, or events and conditions that their decisions cannot influence in any intended way, it is no wonder that governors, presidents, and mayors grasp for that elusive "revolutionary managerial tool" that will restore their sense of direction and control over the governmental system.
>
> PPBS was therefore attractive to the executives who understood it because it offered some hope for establishing

> control, something that had not been accomplished by earlier public management efforts. (Mowitz, pg. 12)

The systems approach addresses the organization as a whole with inter-related parts. Service institutions do not have the same clear distinctions between the clientele and the owners found in business firms, and their services yield collective, rather than specific, benefits, so that the elements of decision making in service institutions are not centralized by a simple motive, such as profit. Therefore, the systems approach offers managers of service institutions a tool that is well suited to their circumstances because the budgets of organizations express the decisions of their administrators on what they expect to do in the future.

B. Responsibility in Budgeting.

In deciding what they expect to do in the future, administrators of service institutions assess the needs of their clientele and decide on programs, that are appropriate for those needs and that are politically acceptable. The systems approach, with its holistic concerns, provides the administrators with methods of assessing needs, deciding on actions, and evaluating the impacts of the programs. Budgets are only a part of the process.

> What Is a Budget? In its simplest form a budget is a document or a collection of documents that refer to the financial condition of an organization (family, corporation, government), including information on revenues, expenditures, activities, and purposes or goals. In contrast with an accounting balance sheet which is retrospective in ature, referring to past conditions and current status, a budget is prospective, referring to expected future revenues, expenditures, and accomplishments. (Lee, pg. 11)

> A budget deals with expenditure and revenue questions for a specific future time period, usually a fiscal year. A fiscal year is any consecutive twelve-month period a jurisdiction has chosen to define as its budget year. (Kramer, pg. 5)

Jurisdictions in governments have the same purposes in budgeting as do libraries in graduate schools. The mechanisms may vary greatly because of the legally binding nature of governmental budgets, but the responsibility is morally and objectively the same.

> A budget is more than simply a legally binding financial plan. It is also a multipurpose document that reflects and seeks to serve the information needs of the participants in the budgetary process. Allen Schick, one of the foremost authorities on both the politics and techniques of budgeting, has suggested that the budget has three main uses: (1) control, (2) management, and (3) planning. A budget controls administrators by tying them to the stated policies of their superiors and legislative overseers. . . . The management function of a budget involves efforts to carry out the approved plans and policies efficiently and effectively . . . . Managerial information needs often influence the planning aspects of budgeting. In the budgeting context, as Schick has pointed out, "planning involves the determination of objectives, the evaluation of alternative courses of action, and the authorization of select programs." Because of the incremental nature of much policy decision making, planning in the budget process reflects political pressures as well as financial analysis. (Kramer, pgs. 5-6)

The systems approach provides the analytical tools to counteract and modify the incremental and political forces in budgeting. These forces will always exist in a budget process, and they are not evil. They are part of the environment in which the librarian or other budget administrators must make decisions. The systems approach allows the librarian to determine objectives, evaluate alternative courses of action, and to secure the authorization of select programs.

The librarian is controlled by the budget because the budget states the policies and expectations of the administrators of the graduate school for the library. The operation of the library throughout the budget year can be explained in terms of the policies stated in the budget. Management in this sense is making the actions of the library meet the expectations of the graduate school. The librarian bases plans for future development of the library and its services on the analysis implicit to the budget preparation and approval.

C. Budget Cycles

The librarian becomes aware that budgeting is not a once-each-year occurrence when its planning aspect is considered. Budget cycles normally have four phases, none of which are entitled "planning." But, without planning these annual cycles of preparation, approval, execution and audit will not serve to strengthen the library. Planning requires a longer time horizon than the single fiscal year being accomplished during the budget cycle. A review of the budget cycle reveals this.

In the preparation phase the librarian tries to anticipate the needs for the forthcoming year and the possibilities that the administrators of the graduate school will accept those needs as supportable. The library usually has a historical record of past budget amounts an an understanding, through personal experience or informal inquiry, of the past successes and failures of methods in presenting the budget.

The approval phase for a graduate school library budget is

usually a single, straight-forward meeting with a representative of the deal of the school. This meeting satisfies the need for negotiation over the budget (if there is to be any such negotiation) and a simple inter-office memo establishes the amount allocated for the next year.

The execution phase of a library budget can be the most complicated part. In years when the budget situation of the graduate school is changing there will probably be some uncertainty about the amount that will be allocated to the library. In years when a budget shortage is anticipated by the graduate school, the library may be put on a pay-as-you-go basis in which obligations are met only when they arrive. The amount of scrutiny, and the potential of reduction of the obligations (either in number or in size) depend on the severity of the shortage for the graduate school. In years when a generous budget is anticipated by the graduate school, the library may receive supplemental funds periodically throughout the year. These funds may not be previously announced so that the librarian can be presented with a dilemma over how to best spend funds that may or may not be complete in themselves, or that may or may not be the beginning of a series of such supplements. Often supplemental funds are received late in the budget year. In the institution that is required to close its books at the end of each fiscal year, that is when the budget lapses, a late budget supplement usually causes some difficult decisions to be made on the best way or ways to spend them. Librarians usually create a desiderata file of items that they would like to have, but can manage to do without, in order to be prepared for budget supplements.

Another problem with budget supplements is that there is no guarantee of an increase in the budgets for subsequent years, nor is there much hope that equivalent supplements will be forthcoming in future years. This lack of anticipated future continuance puts constraints on the types of expenditures that can be made with supplemental funds. Many library materials are useful only as runs of them are accumulated over years. Thus, the placement of an order implies a commitment to the continuation of that subscription indefinitely. It follows that supplemental funds are restricted to being used for monographic type publications or far extending back runs of materials or buying special groups of materials. The latter two options partially explain the growth in use of microformat materials in libraries. Because of the technology of reproducing film copies, they are more economical than are paper copies of non-current materials.

The final phase of the budget cycle, the audit phase, is usually a simple procedure for a graduate school library if it is required at all. Some schools require their library to submit an accounting balance sheet (of more-or-less detail) which summarizes the expenditures for the year and shows the remaining balance if there is any. (Lee, 1982)

II. Program Information In Budgeting.

A. Program Budgeting.

There is nothing in the budget cycle to thwart the tendency for library support from becoming politically motivated and incremental in nature. It has been noted that the libraries in academic institutions have earned dismal reputations as nuisances of the central administration's budget.

> The most accurate answer to the question, "What do academic administrators think about the library," is that they don't think very much at all.
>
> One important consideration is the fact that many academic administrators view the library as a bottomless pit. They have observed that increased appropriations one year invariably result in still larger requests the next. More important, there do not appear to be even any theoretical limits to the library's needs. (Munn, pg. 51)

Because the librarian often views the services of the library from a humanistic perspective, the intangibleness of needs never get transferred into "specific, limited, clearly defined targets." The resultant budget proposals have little that is measurable in them except the amounts that were spent during the previous year. Having little else to use for allocating funds to the library, and having a multitude of requests for increases in funds from other support units, academic administrators cannot be faulted for "muddling through" on library budget decisions.

"Muddling through" is a term that was made popular by Charles E. Lindblom in a 1959 article entitled: "The Science of 'Muddling Through.'" In it he describes a decision method that is quite widely practiced in service institutions. When an administrator is faced with a decision

only a selective amount of information is sought. The subject (although not necessarily the problem) is discussed with those people whom the administrator feels are important to the decision. Thus, the decision becomes part of the situation, and the situation becomes part of the decision. A few alternatives may be considered, but these are already part of the situation because of the discussions. Then, a decision may or may not be made. Often one is not necessary; or, if it is made, it becomes part of the situation--which leads to further needs for administrative involvement. In budgetary decisions administrative involvement in the future is guaranteed when the next budget cycle arrives at the approval stage.

One attempt at overcoming the inertia of basing budget amounts on the amounts used in the previous year is zero-base budgeting.

> Zero-base budgeting (ZBB) is a planning and budgeting process which requires complete review and justification of an entire budget request. Old programs as well as new are scrutinized in three basic steps:
>
> > Identification of decision units,
> > Formation of decision packages, and
> > Ranking, consolidation, and resource allocation.
>
> In other words, a manager identifies the organizational entities, known as decision units, that have identifiable managers and distinctive abilities. These units' activities are further divided into a series of decision packages. These packages are analyzed at various funding levels depending on the careful reappraisal of the unit's objectives, methids, and resources; and the costs of each package are substantiated. Finally, all decision packages are consolidated, if necessary, and then ranked. Depending on the available resources, cutoff funding lines can be fairly easily drawn. Thus, ZBB differs from the incremental budgeting systems traditionally used by most organizations. These processes place great emphasis on proposed increases, but give little scrutiny to old programs included in the current budget. (Chen, pg. xiii)

The major problems with zero-base budgeting are that it is very time consuming and there are major technical problems trying to determine the results of the potential elimination of "old programs included in the current budget." Zero-base budgeting assumes a base of zero rather than assuming a base of the amount allocated for the previous year. ZBB requires each program to be justified, with the possibility of its complete eradication. A mountain of paperwork is produced in the process. (Lee, 1982)

Zero-base budgeting is founded on the same rational-comprehensive analysis as is the systems approach. ZBB is closer to pure rationalism in the requirements of logical steps taken in strict order and completely comprehensive information. The systems approach allows for an approach called limited rationality.

> This model recognizes the inapplicability of pure rationality to complex problems. While acknowledging the inherent constraints of human cognitive processes, limited rationality does not suggest that deliberate search for alternative approaches to goal achievement is of no avail. Search is used to find solutions that are satisfactory as distinguished from optimal or maximal.
>
> This compromise between pure rationality and incrementalism can be understood in terms of Amitai Etzioni's model of mixed scanning. Mixed scanning involves explicit concerns for both long-range action and action across a society-wide spectrum. The analogy of a camera with both a wide-angle and a close-up lens is employed to describe the concept. As wide-angle scanning is used to identify alternatives that appear to have some advantages, so limited rationality is able to avoid examining in detail all possible alternatives as prescribed under pure rationality. A more narrowly focused form of scanning, then, is used to analyze the alternatives selected by the first form of scanning. At this lower level of scanning, analysts may consider the immediate effects of incremental adjustments in present policies, but explicit attention is also directed at what these immediate effects portend for broader and more long-range concerns. Simultaneously, it is possible to be incremental and comprehensive with a short- and long-range perspective. (Lee, pg. 18)

Program budgeting analyzes the impacts of a program by identifying the goals and objectives of the upper levels of the organization and the work units of the lower levels. Impact indicators specify the linkage between the work and the accomplishment of the objectives which, in turn, support the goals. Program budgeting can take a previously existing lump sum budget and, through analysis of the organization and its clientele, reorganize the activities to reveal their purposes and results. Thus, activities that are strongly supportive of the objectives and goals of the organization and its clientele can be strengthened by appropriate funding, while activities that are not supportive can be redirected or eliminated.

To begin to construct a program budget the values of the clientele of the organization must be identified. These values are subjective preferred states that can be expressed by words. Organizations exist to satisfy values. Each identified value can be enhanced by a program category of the overall program structure. Each program category is assigned a specific goal statement. The program categories are each divided into program subcategories, each with a specific objective statement and a set of impact indicators. Each program subcategory is then divided into elements with outputs that are identified as work.

This program structure allows for the evaluation of programs through their various levels by analysis of the impacts on the clientele served by the organization. The impacts are the result of the work, which is the output at the elements level. The impact indicators reflect in precise terms the objective of the subcategory.

Impact indicators are observable and quantifiable measures of some changes in the physical characteristics of the clientele of the program. Impacts are facts. The facts that are chosen are ones that are significant to the fulfillment of the values of the clientele of the program.

Program structure is extremely important. The program structure always asks the question in the budgeting process, "How much are you putting into a program and is it the right amount?" If a program structure is set up one way it will ask that question of one set of variables, if it is set up another way the question will be asked of another set of variables. It is necessary that program categories be mutually exclusive, and that program subcategories match specific categories.

The program structure can be based on the target population which the program is designed to serve, or it can be based on the substantive content of the program. All levels of the structure should consistently hold one of these approaches. The approach, whether people or subject, can be decided on the basis of the data available. The terminology of the statements must be politically acceptable. (Lee, 1982)

A program structure focused on the library as a subcategory could be arranged as shown in Illustration A.

Illustration A
Program Structure

Program: Graduate School.

Category: Information Services.
Consists of actions taken to provide information that is supportive of the teaching, research, and administrative categories of the graduate school for the students, faculty and administrators of the graduate school.

Policy: To provide supportive information for the students, faculty and administrators of the graduate school by operating a library and a computer center which purchase and otherwise arrange access to information from external sources.

Subcategory: Library.
Consists of actions taken to transfer supportive information from printed, audio-visual and microcopy materials and related data base services to the students, faculty and administrators of the graduate school.

Objective: To promote the effective transfer of supportive information to the students, faculty and administrators of the graduate school.

Impact Indicators: 1) Number of uses of the library as a percentage of the number of students, faculty and administrators of the graduate school; 2) Number of items used as a percentage of the number of students, faculty and administrators of the graduate school; 3) Percent of requests from the students, faculty and administrators of the graduate school satisfied; 4) Number of items in the collection per full-time-equivalent student.

Element: Collection Development.
Consists of providing materials for the students, faculty and administrators of the graduate school.

Outputs: 1) Number of orders placed; 2) Number of transactions with vendors and publishers; 3) Number of items processed; 4) Number of records created for materials.

Element: Reference Services.
Consists of providing access to and aid in the use of library materials for the students, faculty and administrators of the graduate school.

Outputs: 1) Number of times access or aid provided; 2) Number of items refiled; 3) Number of direct requests for information received; 4) Number of items used to satisfy direct requests for information.

B. Gathering Data on the Graduate School

The program structure establishes the framework of program analysis for budgeting. The data needed for analyses can be gathered in a variety of ways. For the impact indicators used in the program structure given above, the data does not require any skills beyond simple mathematics. The numbers of people in the groups served by the library can be obtained from the graduate school administrative office. The numbers for "uses of the library," "items used," "requests for information," "provision of information sources" and "items in the collection" can all be gotten from internal records kept by the library.

More detailed data may be desired for operating the library and making decisions on the proportional allocations of funds among several items. There are a series of cross-tabulation and other comparisons that can be done with great benefit using data at a more specific level than the above program structure requires. To accomplish those analyses there are a number of tools available to the librarian. These tools include: decision analysis, forecasting, linear programming, queuing, simulation, replacement models, probabilities and Bayesian analysis, inventory models, flowcharting, PERT/CPM and network models as well as questionnaires. It is beyond the scope of this paper to discuss these analyses techniques.

The level of detail requested by the program structure used in this paper was chosen to allow a meaningful representation of the impact of the library to be made to the graduate school administrators.

More specific data might be useful to justify special requests or to answer questions that the administrators might ask from time to time. Such data gathering and use is covered in the topic of management information systems.

The program structure provides a guide of the data needed by the librarian about the graduate school for the budgeting process. The key information in the program structure given above is "the number of students, faculty and administrators" (target population) of the graduate school. This is not implying a simple count of people, but rather a count of people in each of the groups of the graduate school. People in different groups have different needs for information. Administrators are quite likely to use the library's services the least. Faculty uses differ from student uses in types and frequency. Within the student group, there are sub-groups of users if there are professional degree students, M.S./Ph.D. students and continuing education students.

The impacts of the library are the changes in the behavior of the individuals in these groups. The impact indicators are percentages and a ratio so that changes in numbers of people in the groups from year-to-year will not affect the comparisons of impact indicators from one year to another. The impact indicators are aggregate measures. They measure the impacts of the library on the groups of clientele served over time. Because budgeting is provided on an annual basis, the time basis for measuring the impacts of the library are also annual. The impacts on the whole group of clientele is the quantity that is used for comparison.

C. Use of Data in the Budgeting Process of the Library.

For the purposes of this paper an active library which is strongly supportive of all categories of the graduate school operations except doctoral dissertation research is assumed. The presence of a computer with the capacity to accept a comprehensive library software package is also assumed. Certain support services, such as part-time computer programming assistance and some accounting and payment services are assumed to be provided by the school as are the provision of utilities, such as heat, electricity and local telephone service. Major library elements, such as space, shelving, tables, chairs and desks are assumed to be part of the contract for the building. Items such as long distance communication costs, special furniture, and equipment are assumed to not be provided.

It is further assumed that a strong, central research library is available on the same campus, and that information access to other collections of materials is possible through inter-library borrowing.

In order to provide a realistically difficult situation in which to apply the program structure, assume that a new library is being established. This situation introduces two problems. One is that there is no past data on which to base analyses. The other is that there is introduced a "start-up" period and expenditures, which are a portion of a year and require special funding to accomplish. An advantage of this situation is that it avoids the natural tendency to incrementalism.

The services of an expert in the field of librarianship is clearly necessary for reliable analyses to be accomplished. The expert

would best be well practiced in providing library services within the subject area of interest to the graduate school. Also, familiarity with the budget and systems analysis is quite desirable.

Staff expenditures are a major portion of a budget. They usually are greater than fifty percent of the expenditures for a library. Libraries are labor intensive organizations. They provide their services only through staff operations. An increase in the level of services requires a concomitant increase in staff expenditures. This relationship is being ameliorated somewhat by the application of computers to libraries, but the benefit is only in a shift of lesser amounts of extra staff expenditures being required for greater amounts of growth in services. In other words, more services always cost more, but with computers you can get greater service extensions for the same amount of staff expenditure increase. This relationship does not address the costs of the computer hardware and software. It also refers to the long range operation of computer systems in libraries, not the huge expense of converting a library from manual systems to automated ones.

The calculation of staff expenditures for a graduate school library requires a number of preliminary decisions which the librarian must negotiate with the school administration. What number of each type of staff are needed? What are to be their salary ranges? How many hours will the library be open? How extensive will the library services be? What external support systems will be used to provide information such as bibliographic records, location identification for inter-library loans, and vendor services?

The logic of the development of staff expenditures can begin at many points. The process is intertwined with the program structure developed in section II.A., above. The librarian should have a firm sense of the needs of the school for the various types and levels of information services, even if there has been no opportunity to measure them.

Staff expenditures are based on the amount of services offered and the length of time over which they are to be offered. Different types of staff are needed for different types of services. The types of services vary from one time period of the day to another. This may seem obvious, but the experience of users expecting the library to be fully staffed for service at five minutes until midnight indicates that it is not obvious to everyone.

The hours of operation developed by the librarian with administrative approval require staff to be present in the library for 100 hours each week, for an example. Sophisticated services are required for only 40 of these hours. The remaining 60 hours of night and weekend time can be covered by student assistants. Student assistants' functions are basically security, general directions and the refiling of used materials. Illustration B shows the distribution of staff coverage.

Illustration B

Hours of Operation

| | | | Student Assistants' Hours: |
|---|---|---|---|
| Monday through Thursday | 9 a.m. - 2 p.m. | | |
| Operations Staff: | 8:30 a.m. - 5 p.m. | | |
| Student Assistants: | 8 hours / day | = | 32 |
| | + 5 p.m. - 2 a.m. | = | 36 |
| Friday | 9 a.m. - 8 p.m. | | |
| Operations Staff: | 8:30 a.m. - 5 p.m. | | |
| Student Assistants: | 8 hours | = | 8 |
| | + 5 p.m. - 8 p.m. | = | 3 |
| Saturday | 9 a.m. - 6 p.m. | | |
| Student Assistants: | 9 a.m. - 6 p.m. | = | 9 |
| Sunday | 2 p.m. - 2 a.m. | | |
| Student Assistants: | 2 p.m. - 2 a.m. | = | 12 |
| | | | 100 |

The amount of servies offered determines the number and types of staff required for the operation of the library during the week. Some student assistance will be required. Thus 40 hours are added to the 60 hours of students coverage on nights and weekends.

The staff needed to provide the sophisticated services of the library must provide a variety of skills. There must be an administrator to manage the operations and communicate with the school administration. The administrator should possess a wide variety of library skills, management skills, and knowledge of the subject area of special interest to the graduate school. Another person must be knowledgeable in the area of collection development techniques to oversee the acquisition and processing of materials. Someone with subject area expertise and exceptional communication skills is needed to oversee the reference services of the library. Then, support staff are needed to accomplish the multitude of clerical, semi-clerical and semi-professional details that combine to keep the information available for transfer to the clients of the library.

The number and types of support staff needed depend largely on the circumstances in which the library operates. Because of automation, and easy access to other libraries and information networks the number of staff required in the present example is small.

Beside the head librarian a part-time collection development specialist and a part-time reference services specialist complete the professional staff. To provide a high level of responsible service when neither the reference services librarian nor the head librarian can be in the library, and to supervise the student assistants, a full-

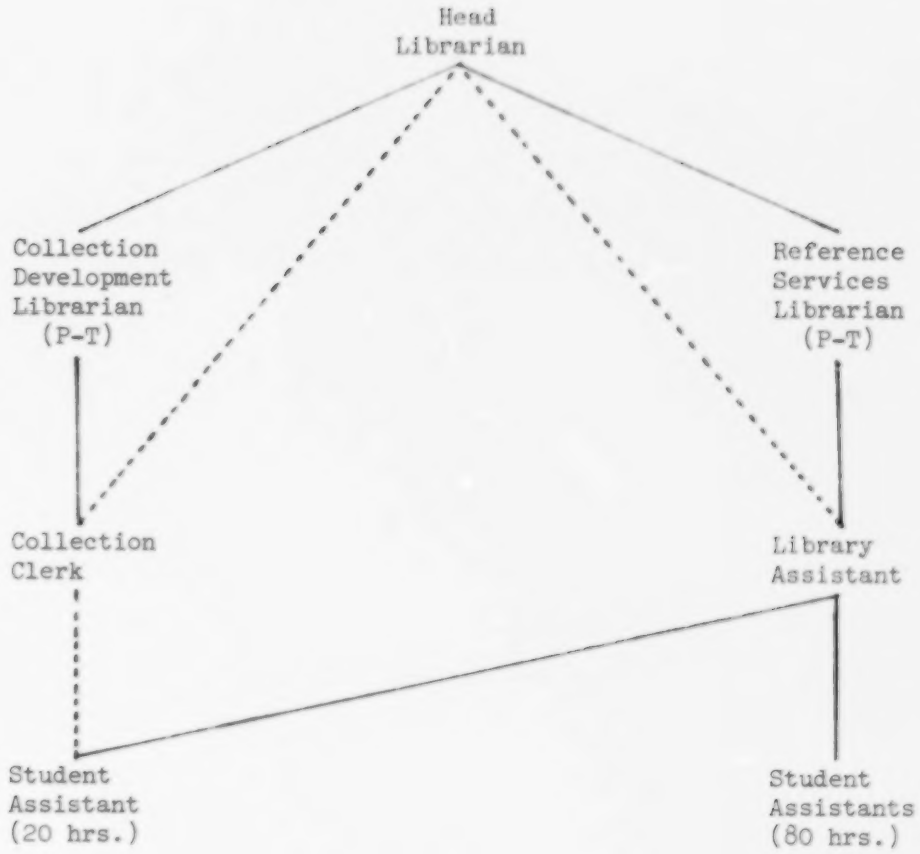
time semi-professional library assistant is needed. Because of the large number of transactions with vendors involved in collection development activities a full-time clerk is needed. Illustration C shows the organization chart for the library.

Materials expenditures are the other major portion of the expenditures of a library. To start a new library the materials costs are divided into "startup" and ongoing expenditures. If a library were already in operation the overall amount for material would be part of the information available in a library that could be modified using program budgeting analysis. In a new library a reasonable amount for materials can be established by comparison to similar libraries. The first year amount of $100,000 was chosen as slightly high, but not unrealistically by such comparisons. Calculations can also be easily made on this amount.

Equipment expenditures are usually a small portion of a library budget. But, in beginning a new library they require special attention. A library requires much special equipment, especially one that provides audio-visual services as well as printed and microcopy sources. Equipment lists with prices are readily available from supply houses. After deciding what is needed a total amount is easily determined. Service contracts for equipment is an item that should not be overlooked as an expenditure.

Automation costs are a recently added expenditure for libraries, but one that is growing. To determine expenditures for automation a careful study of software packages available and the estensiveness of automation activities in the library must be determined.

Illustration C
Organization Chart



Also, communication costs need to be considered because of increased reliance by libraries on external sources of information through computer networks.

III. Display of Financial Data.

A. The Total Budget

As noted above, the first year of operation for the new library under consideration in this paper is divided between a startup period and what remains of the year. Assume a July 1st beginning date for the startup period with a January 1st deadline to open the library; thus allowing a six months period for startup and six months remaining in the fiscal year.

To construct a budget on these time periods it is advantageous to have the program structure to begin with. The program structure divided the library into collection development and reference services. Each area of expenditure is divided between these two elements.

Beginning with staff expenditures, amounts are determined for each of the types of employees needed on an annual basis first. The salaries and benefits are determined by comparisons to similar positions for the head librarian, library assistant and clerk are: 34,000 for the head librarian, 21,000 for the library assistant, and 15,000 for the clerk. The Annual Salary Survey published by the Association of Research Libraries is a useful guide to determine the librarians salary. The amounts shown include a 20 to 25% benefit package cost.

The part-time professional employees are on an hourly wage basis and therefore the expenditure for them can be computed on an hours-per-week and weeks-per-year basis. For ease of computation, a generous $10.00 per hour is used. Both professionals work 20 hours per week for 50 weeks each year.

Student assistants normally receive the minimum wage if they are undergraduates. A graduate school library is much more likely to employ graduate students, who would receive $4.00 per hour. The number of weeks worked each year by students is set at 40 because they are not available during school breaks.

The total annual staff expenditures for 1982-83 would be the combination of salary and wage expenditures shown in illustration D.

Illustration D

Staff Expenditures

| | | |
|---|---|---|
| **Salaried:** | | |
| Head Librarian | $34,000 | |
| Library Assistant | 21,000 | |
| Clerk | 15,000 | |
| | 70,000 | $70,000 |
| **Wage:** | | |
| Professionals | $20,000 | |
| 2 x 20 $\frac{\text{hrs.}}{\text{week}}$ x 50 weeks x $10.00 | | |
| Students | $16,000 | |
| 100 $\frac{\text{hrs.}}{\text{week}}$ x 40 weeks x $4.00 | | |
| | $36,000 | $36,000 |
| | | $106,000 |

The 1982-83 fiscal year is divided equally between the startup period and the remainder of the year. Illustration E presents the program budget structure for staff expenditures for 1982-83.

To start the library the head librarian begins collection development work and hires three wage employees. The three wage employees during the startup period work a maximum of 40 hours. There is a reduction in the total hours because the flow of materials is not

anticipated to require full employment and because of other considerations, such as finding the people to be hired and personal stipulations for time off. There is no reference service during the startup period.

The annual rate of salaried staff hours for collection development would be the clerk at 40 hours per week for 50 weeks. This produces 2000 hours per year. The wage hour annual rate of hours would be the professional librarian at 20 hours per week for 50 weeks, equaling 1000 hours per year and the student assistants at 20 hours per week times 40 weeks per year.

There is no reference services element during the start-up period. All expenditures are for time used for collection development, which is a considerable effort.

The annual rate for collection development expenditures consists of one part-time professional wage, one clerk salary and 3200 hours of student wages (80 hours/week x 40 weeks).

The annual rate for reference services expenditures consists of the head librarian salary, one part-time professional wage, the library assistant salary and 800 hours of student wages (20 hours/ week x 40 weeks).

Illustration E

Staff Budget

| Element: | Annual Rate: | Startup: | Remainder: |
|---|---|---|---|
| Collection Development | | | |
| Salaried | $15,000 | $ 7,500 | $ 7,500 |
| Wage | $22,800 | $11,400 | $11,400 |
| | $37,800 | $18,900 | $18,900 |
| Reference Services | | | |
| Salaried | $55,000 | $27,500 | $27,500 |
| Wage | $13,200 | $ 6,600 | $ 6,600 |
| | $68,200 | $34,100 | $34,100 |

The $100,000 materials expenditures for 1982-83 can be divided as shown in Illustration F. All materials expenditures are in the collection development element of the program budget structure.

Illustration F

Materials Expenditures

| Type: | Annual Rate: | Startup: | Remainder: |
|---|---|---|---|
| Monographs | $10,000 | $10,000 | $10,000 |
| Journals | $20,000 | $40,000 | $20,000 |
| Indexes | $10,000 | $50,000 | $10,000 |
| Directories | $10,000 | $10,000 | ------- |
| Statistics | $15,000 | $60,000 | ------- |
| Looseleafs | $15,000 | $15,000 | ------- |
| Microforms | $10,000 | $30,000 | $10,000 |
| Films | $ 5,000 | $ 5,000 | $ 5,000 |
| Voice Tapes | $ 2,000 | $ 2,000 | $ 2,000 |
| Memberships | $ 3,000 | $ 3,000 | ------- |
| | $100,000 | $225,000 | $57,000 |

Extra monies are allocated for startup costs. Monograph expenditures are doubled for the year. This would be greater if there were not already a central library on the same campus. Journals expenditures

are tripled. This would be greater if many back years of journals were not bought on microfilm. Index expenditures are sextupled because a five year back run of each index is desired. Directories are entirely a startup expenditure because they will not be due for payment until the second year. Statistics sources are quadrupled because of selective back years being desired. Most statistics purchases are annual, therefore they are only startup expenditures for the first year. Looseleafs are annual expenditures. Microforms are quadrupled because many back runs are available in microforms. The expenditures would be greater, but costs of microcopies are quite often one-fifth of the cost of paper copies. Films and voice tapes are each double expenditures for the first year. Memberships are annual.

The annual amount rates were established on the basis of the experience of the compiler.

Automation costs are partly absorbed by the graduate school because of their needs for a computer. The software package for automating the records of the library can cost as much as $70,000. Therefore that amount is chosen as a first year expenditure. The two packages available for $70,000 are "INQUIRE" from Infodata Systems of Falls Church, Virginia and "BASIS' from Batelle Columbus Laboratories of Columbus Ohio. Approximately $20,000 is needed for hardware, such as terminals and printers. The expenditures for automation are divided about 50 percent each into the collection developmental element and the public services element.

Communication expenditures for costs other than local telephone calls can be very problematical. They can be divided about 50 percent each into the collection development element and the public service element, except for the startup period. $3,000 was chosen as an annual rate for 1982-83. $1,000 is assigned to the startup period and $2,000 to the remainder of the year because more communications will be necessary to demonstrate new systems after the library is open.

Equipment expenditures were computed to be $65,000 for the startup by adding costs for equipment known to be needed from suppliers catalogs. The equipment selected ranged from photocopy and microfilm equipment to projectors to a theft detection system to special tales to file cabinets to staplers to signage sets. Most equipment is used for the public services element, but some is specifically for collection development.

B. Planning and the Total Budget

The ability to plan using the program budget structure is one of its most valuable benefits. Beyond being able to analyze past impacts of work produced by the organization for the establishment of the budget for the upcoming year, program budgeting provides a structure to apply developing trends in work loads to longer range budget projections. Also, external economic factors, such as inflation, can be predicted and integrated into the budget plans for upcoming years. After the plans for the future are made, they can then be reviewed to discover the inter-relationships of expenditures in the different items in the budget.

The usual time range of projecting budget expenditures is five years. Illustration G shows the five year budget plan for a graduate school library using the amounts established above for 1982-83.

Salaries are predicted to increase at 5% per year. Wages should stay fairly stable; but a 10% increase is allowed once, in 1985-86. Automation costs are greatest at the beginning. Service fees of 10% of the gross initial investment can be anticipated. More hardware is anticipated before 1990 to replace and modify initial equipment. Communication costs are estimated to jump radically in the second year because of client awareness of library services becoming established then. A fixed annual increase after the second year is set to cover higher cost per unit from the companies. Equipment costs are minimal compared to the initial costs. Second through fifth year expenditures include service contracts. Replacement of equipment is anticipated to begin before 1990.

Materials expenditures is the most complex to compile. The 1982-83 annual rate is established on the basis of awareness of costs by the compiler. The numbers of items needed is a point that is negotiable with the administration of the graduate school. To provide a concept of the numbers of items that can be bought with the amounts designated and to provide a rationale for the annual increases standard cost surveys are consulted. The Bowker Annual of Library and Books Trade Information, published in New York by R. R. Bowker Co., and an annual issue of Library Journal list indexed increases in various types of publications. Bowker indices indicate a 10% average annual increase for monographs, looseleaf services,

Illustration G

Five Year Budget Plan

| Element: | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 |
|---|---|---|---|---|---|
| Collection Development | | | | | |
| Salaries | $ 15,000 | $ 15,750 | $ 16,538 | $ 17,405 | $ 18,276 |
| Wages | 22,800 | 22,800 | 22,800 | 25,080 | 25,080 |
| Materials | 100,000 | 111,340 | 124,035 | 138,255 | 154,175 |
| Automation | 45,000 | 4,500 | 4,500 | 4,500 | 4,500 |
| Communications | 1,500 | 2,500 | 3,000 | 3,500 | 4,000 |
| Equipment | 5,000 | 500 | 550 | 605 | 665 |
| | $188,800 | $157,390 | $171,423 | $189,345 | $206,696 |
| Reference Services | | | | | |
| Salaries | $ 55,000 | $ 57,750 | $ 60,638 | $ 63,670 | $ 66,854 |
| Wages | 13,200 | 13,200 | 13,200 | 14,520 | 14,520 |
| Automation | 45,000 | 4,500 | 4,500 | 4,500 | 4,500 |
| Communications | 1,500 | 2,500 | 3,000 | 3,500 | 4,000 |
| Equipment | 50,000 | 2,000 | 2,200 | 2,420 | 2,662 |
| | $174,700 | $ 79,950 | $ 83,538 | $ 88,610 | $ 92,536 |
| Total: | $363,500 | $237,340 | $254,961 | $277,955 | $299,232 |
| Startup (1982-83) | $182,000 | | | | |
| | $545,500 | | | | |

microforms, and films; a 15% annual increase for journals and a 2% annual increase for voice tapes. Because of the similarity of indexes to journals a 15% annual average increase was assigned to them. Likewise, a 10% average annual increase was assigned to directories and statistics sources because of their similarities to looseleaf services. A 10% average annual increase was assigned to membership fees. The Library Journal tabulations confirm the journal and index increases. A tabulation of the percentage increases indicated was done and each year's column added to obtain the amounts entered in the "Materials" line of illustration G.

Other plans that can be made using the program budget are the result of analyses of the Impact Indicators. To do this a cross-tabulation of the Indicators and the years in which they are taken is done, as set forth in Illustration H.

Illustration H
Budget Impacts

Subcategory: Library

Objective: To promote the effective transfer of information to the students, faculty and administrators of the graduate school.

| Indicators: | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 |
|---|---|---|---|---|---|
| 1) Use of library | | | | | |
| Units | | | | | |
| Percentage | | | | | |
| 2) Items used | | | | | |
| Units | | | | | |
| Percentage | | | | | |
| 3) Requests satisfied | | | | | |
| Units | | | | | |
| Percentage | | | | | |
| 4) Items in collection | | | | | |
| Units | | | | | |
| Per F-T-E Student | | | | | |

This table shows trends and other changes that reveal the impacts of the work being done by the library staff. To analyze the work

itself other cross-tabulations are performed. Illustration I shows the form for recording work.

Illustration I
Work Records

Element: Collection Development.

| Outputs: | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 |
|---|---|---|---|---|---|
| 1) Orders placed | | | | | |
| 2) Transactions | | | | | |
| 3) Items processed | | | | | |
| 4) Records created | | | | | |

Element: Public Services.

| Outputs: | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 |
|---|---|---|---|---|---|
| 1) Aid provided | | | | | |
| 2) Items refiled | | | | | |
| 3) Requests | | | | | |
| 4) Items used | | | | | |

A similar table can be used to project the estimated need or demand for each output. Or, the same table format can be used to list objects of expenditure in the place of outputs. This gives more detail than is possible in the tabulation presented in Illustration G. For example, individual staff positions could be listed and records or projections of their salaries or wages could be tabulated for the years in the columns. Such a tabulation would reveal costs that could be correlated to the work in the tables in Illustration I. (Lee, 1982)

C. Summary

Unlike business firms that measure the accomplishment of objectives by financial profits, service institutions must develop performance measures based on objectives founded in the values of their clients. A method for doing this is available through the systems approach. Program budgeting is founded in the systems approach and allows control, management and planning in the organization -- thus counteracting the natural tendency to incrementalism.

Throughout the four phases of the budget cycle (preparation, approval, execution and audit) the program budget is the guide for the budgeting process. By evaluation of the impacts of the work accomplished by the library staff the budgeted amounts can be justified or adjusted in subsequent years. Program budgeting avoids the extremes of zero-base budgeting.

Impact indicators specify the linkage between the work accomplished and the objectives of the library. Objectives, in turn, support goals of the clientele of the library.

Each program category of the program structure is assigned a goal statement. The program categories are divided into subcategories, each with a specific objective statement and a set of impact indicators. Each subcategory is then divided into elements with outputs that identify work.

Using the program budgeting structure the data on a graduate school can be analyzed and the budget of the graduate school library can be focused on the values of the school.

Staff expenditures are a major portion of a budget and require special attention. Staff are divided between wage and salary. The latter requires a 20-25 percent of base benefits package, but establishes the core operations of the library.

Materials expenditures are a second major budget category. There are a large number of types of materials needed by a library. Startup costs are a large expenditure because a basis collection of materials must be established in a short period of time.

Planning on a five year basis is facilitated by the program budget. Beside inflationary increases, new or expanded services or collection emphases can be developed within the five year time horizon. Also, trends in the impacts of the library can be used to develop future budget allocations.

## Bibliography

Babunakis, Michael. Budgets: An Analytical and Procedural Handbook for Government and Non-Profit Organizations. Westport, CT: Greenwood, 1976.

Bowker Annual of Library and Book Trade Information. New York: R.R. Bowker Co., 1980.

Brown, Norman B. and Jane Phillips. "Price Indexes for 1981, U.S. Periodicals and Serial Services." Library Journal 106:(no.13) 1387-1393 (July 1981).

Chen, Ching-chih. Zero-Base Budgeting in Library Management: A Manual for Librarians. Phoenix, AZ: Oryx Press, 1980.

Drucker, Peter F. "Managing the Public Service Institution." Public Interest no.33, 43-60. New York: National Affairs, Inc., Fall 1973.

Fretwell, Gordon (comp.). Annual Salary Survey, 1981. Washington: Association of Research Libraries, 1982.

Golembiewski, Robert T. (ed.). Public Budgeting and Finance. Itasca, IL: F.E. Peacock Publishers, 1968.

Kramer, Fred A. (ed.). Contemporary Approaches to Public Budgeting. Cambridge, MA: Winthrop Publishers, 1979.

Lee, Robert D., Jr. Lectures to Public Administration 576, "Government Fiscal Decision Making." University Park, PA: The Pennsylvania State University, Winter Term, 1982.

Lee, Robert D., Jr. and Ronald W. Johnson. Public Budgeting Systems. Baltimore: University Park Press, 1977.

Lyden, Fremont J. and Ernest G. Miller (eds.). Public Budgeting: Program Planning and Evaluation. Chicago: Rand McNally, 1978.

Martin, Murray S. Budgetary Control in Academic Libraries. Greenwich, CT: JAI Press, 1978.

Mowitz, Robert J. The Design of Public Decision Systems. Baltimore: University Park Press, 1980.

Munn, Robert F. "The Bottomless Pit, or the Academic Librarian as Viewed from the Administration Building." College and Research Libraries 29:(no.1) 51-54 (Jan. 1968)

Novick, David. Current Practice in Program Budgeting. New York: Crane-Russak, 1973.